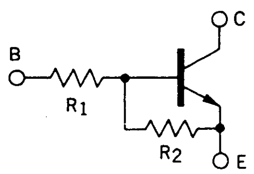
NEC

NPN SILICON TRANSISTOR
BA1L4M

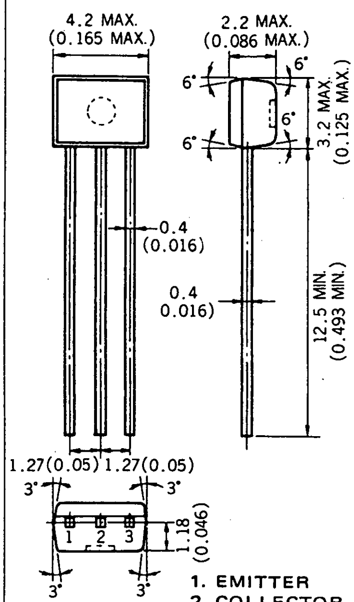
DESCRIPTION The BA1L4M is designed for use in medium speed switching circuit.

FEATURE
- Bias resistors built-in type NPN transistor equivalent circuit.



R_1 = 47 kΩ
R_2 = 47 kΩ

PACKAGE DIMENSIONS
in millimeters (inches)



1. EMITTER
2. COLLECTOR
3. BASE

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures
- Storage Temperature . . . . –55 to +150 °C
- Junction Temperature . . . . 150 °C Maximum

Maximum Power Dissipation (T_a = 25 °C)
- Total Power Dissipation . . . . 250 mW

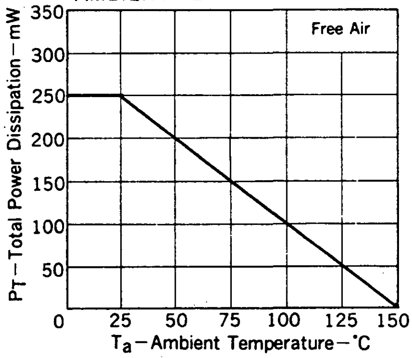
Maximum Voltages and Currents (T_a = 25 °C)
- V_{CBO} Collector to Base Voltage . . . . 60 V
- V_{CEO} Collector to Emitter Voltage . . . . 50 V
- V_{EBO} Emitter to Base Voltage . . . . 10 V
- $I_{C(DC)}$ Collector Current (DC) . . . . 100 mA
- $I_{C(pulse)}$ Collector Current (pulse) . . . . 200 mA

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

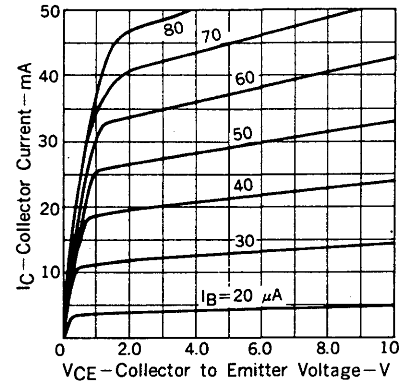
SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
R_1	Input Resistance	32.9	47.0	61.1	kΩ	
R_1/R_2	Resistors Ratio	0.9	1.0	1.1	–	
V_{IL}	Low Level Input Voltage		1.1	0.8	V	V_{CE} = 5.0 V, I_C = 100 μA
V_{IH}	Hi Level Input Voltage	5.0	1.7		V	V_{CE} = 0.2 V, I_C = 5.0 mA
t_{on}	Turn on Time		0.27	0.7	μs	V_{CC} = 5.0 V, R_L = 1.0 kΩ
t_{stg}	Storage Time		2.0	5.0	μs	V_{in} = 5.0 V,
t_{off}	Turn off Time		2.48	6.0	μs	PW = 2 μs, Duty Cycle ≦ 2 %
h_{FE1}	DC Current Gain	85	240	340	–	V_{CE} = 5.0 V, I_C = 5.0 mA
h_{FE2}	DC Current Gain	95	640		–	V_{CE} = 5.0 V, I_C = 50 mA
$V_{CE(sat)}$	Collector Saturation Voltage		0.04	0.2	V	I_C = 5.0 mA, I_B = 0.25 mA
I_{CBO}	Collector Cutoff Current			0.1	μA	V_{CB} = 50 V, I_E = 0

TYPICAL CHARACTERISTICS (T_a = 25 °C)

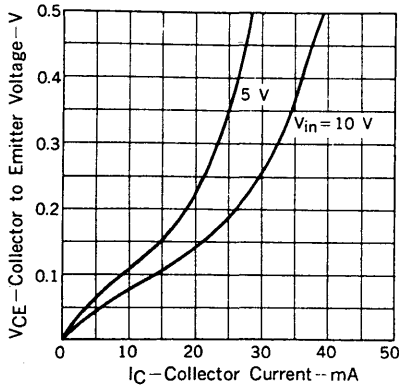
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



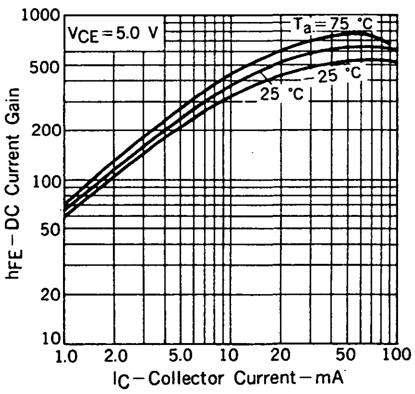
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



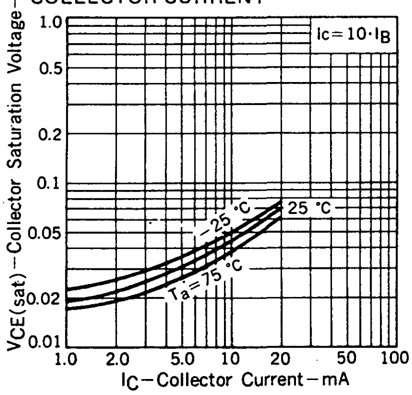
COLLECTOR TO EMITTER VOLTAGE vs. COLLECTOR CURRENT



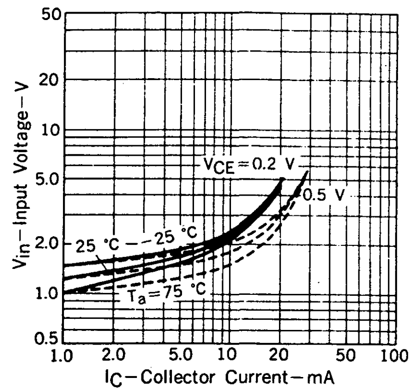
DC CURRENT GAIN vs. COLLECTOR CURRENT



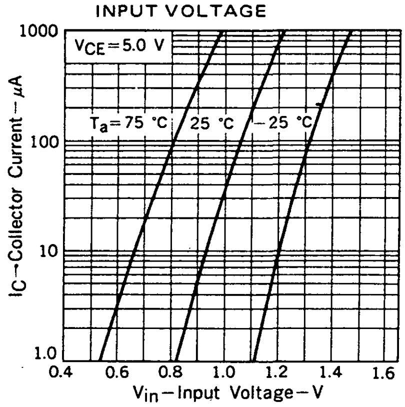
COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



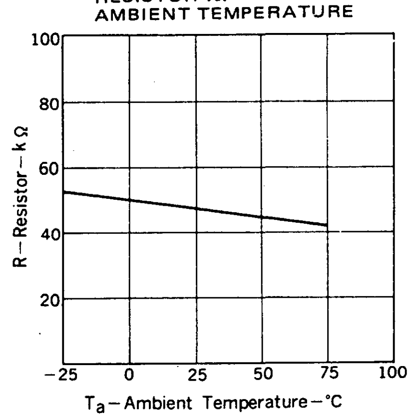
INPUT VOLTAGE vs. COLLECTOR CURRENT



COLLECTOR CURRENT vs. INPUT VOLTAGE



RESISTOR vs. AMBIENT TEMPERATURE



SWITCHING TIME vs. COLLECTOR CURRENT

